

management is described, the central task of which is a systematic description of the evolution during crises of beliefs held by decision-makers about risk of nuclear war.

KEY WORDS: belief; crisis; psychology (phenomenological); risk; war (nuclear).

INTRODUCTION

Ever since psychology was organized into a separate discipline, intellectuals concerned with reducing the risk of war have looked to its methods and findings for insights which might be applied to international politics. Shortly after the Spanish-American War, for example, William James (1977b) wrote an essay espousing what he called "The Moral Equivalent of War." James, a Darwinian, argued that institutions must be created which help to channel our aggressive instincts into useful, rather than destructive directions.

Later, during the rise of fascism and the drift toward World War in the 1930s, physicist Albert Einstein became convinced that psychological variables—our "manner of thinking," as he called it—lay at the very core of the causation of war among nations. Einstein believed that if only a way could be found to "think" in global, rather than nationalistic terms, war could be avoided, perhaps permanently. In an exchange published as "Why War" (Einstein and Freud, 1966), he wrote to Freud, the most eminent psychologist of his time, for assistance in provoking a psychological revolution which would usher in global thinking. Freud (Einstein and Freud, 1966) responded politely but firmly that he could provide no such assistance; he knew of no way psychology could make any direct contribution to reducing the risk of war.

In the past several years, there has been an emphatic revival of interest among psychologists and others in applying psychological insights to the problem of reducing the risk of war, especially nuclear war. In the following sections, I have surveyed some of the most influential recent attempts to link psychological knowledge with reducing the risk of nuclear war. My conclusion regarding this enterprise is not unlike Freud's in response to Einstein's inquiry: The results so far indicate that the revival of Einsteinian enthusiasm is unwarranted. In sum, the critical conclusions are these:

1. There has been little or no influence on the policy-making process, at the level of deep, intermediate, or precipitating psychological causes of a potential nuclear war.
2. There is reason to believe that such influence will continue to be minimal and also, in fact, that it probably should be minimal, when viewed from the policy-maker's perspective.

The most compelling reason policy-makers have for ignoring psychiatrists and psychologists is this: the assumptions and *modus operandi* at each level are *utopian*—in the case of the "depth" psychologists (see section 2) because they believe they can change the mental structures of virtually all important world leaders, and for the "intermediate" behavioral scientists (see section 3) because they believe they can convince foreign policy makers that it is in their best interest to permit the transformation of nuclear policy into a virtual applied behavioral science. I believe that each of these pursuits has been and will remain fruitless. Thus, since I regard influence on the policy process as the *sine qua non* of successful nuclear risk reduction, I believe psychologists are likely to remain out in the cold, as it were, without influence, despite all their good intentions.

As I argue in the last two sections, on precipitating psychological causes of a potential nuclear war, the time may be right for viewing the potential linkage between risk of nuclear war and psychology in a new light. The main requirement is that psychologists learn to think in a non-utopian way about the problem of nuclear risk reduction and that they therefore avoid calling for conversion-like psychological revolutions and suggesting "off the shelf" solutions from their laboratories and clinics. In the final section, an outline is sketched of a phenomenological approach to the precipitating psychological causes, an approach which may eventually yield psychological information more useful to policy-makers than have previous approaches (Blight, 1985a,b; 1986).

PSYCHOLOGIES OF AVOIDING NUCLEAR WAR: AN ANALYTIC FRAMEWORK

In searching for a useful framework within which to discuss various psychological approaches to avoiding nuclear war, I suggest we start with this dilemma: On the one hand, we believe that under anything like present conditions, it would be impossible for the leadership of a superpower to calculate rationally the expected benefits and costs to be derived from initiating a nuclear war, and conclude that such a step would be worth it. On the other hand, we do not believe a nuclear war is impossible. As is often said, although nuclear war would be "insane," thus improbable, its putative "insanity" does not preclude its occurrence, for apparently "insane" actions occur all the time (Allison *et al.*, 1985).

While we need not object to this commonplace linkage of nuclear war with "insanity," we need to be clear about the sort of breakdown or degradation of rationality that is most to be feared. It is emphatically *not* clinical

psychosis or "craziness" in the colloquial sense: that is, a breakdown (in the psyche of a leader, say) in the ability to make relatively rational, expected value calculations. For although such a breakdown may conceivably occur in the stress of a crisis, there is little evidence that wars are mainly caused by the dissociation in the mental states of leaders who have gone mad. In any case, one hardly knows how to plan for the intrusion of clinical insanity into international politics.

Rather, an "insane" major nuclear war is far more likely to result from one or another leadership calculating, in as rational a fashion as decision-making bodies are capable, that initiating a nuclear war is in fact "worth it," on balance. How, generally speaking, might this occur? It would begin with one side coming to believe, probably by a misreading of intentions, that the *other* side was no longer rational, that in fact the adversary seemed willing and able to go all the way to nuclear war in order to resolve a crisis to its advantage.

If this occurred, and if each side then began to doubt the other's intention to avoid a nuclear war, then a spiral of threats and counter-threats backed by military moves might ensue, a spiral which might lead one or both sides to believe that their situation was so perverse that the single action which promised the best hope of maximizing gains and cutting losses would be escalation to the nuclear level, or even massive preemption.

Thus the often-mentioned "insanity" of a nuclear war would assert itself, in large part for psychological reasons, but not because leaders would have lost their minds, like General Ripper in Stanley Kubrick's film, "Dr. Strangelove" (1962). Rather, the insanity in question would more aptly describe a *situation*, arrived at by misperception and rational calculation, so perverse as to render as the "best" option the initiation of a disastrous nuclear war.

Thus any psychological approach to avoiding nuclear war which seeks to reduce the risks, must in some way address these questions:

1. How might an act which, under normal, relatively relaxed conditions, is regarded by all concerned as "insane" (and thus unlikely to occur), be transformed into an act viewed by relevant participants as progressively less insane, relatively less maladaptive than the logic of deterrence suggests it should be? *How can we describe the process by which the intentions of deterrence may become inverted?*

2. *What ought to be done to halt or reverse this process?*

The great (and apparently growing) fear is that nuclear weapons, ostensibly designed and deployed only to prevent all use of nuclear weapons, will be used anyway. Thus we must do our best to enter into some imagined psychological process that may lead to an increased proclivity to initiate nuclear war, to map its general contours and then to suggest policies and

other interventions that promise to prevent our imagined nightmares from actually happening.

This means that we should adopt what I prefer to call a "functional" approach to avoiding nuclear war. Most people who have been paid throughout the nuclear age to think about avoiding nuclear war have adopted, conversely, a "structural" approach, according to which one tries to structure forces and strategies in such a way that rational actors on all sides, noticing from their calculations just how foolish a nuclear war would be, decide not to initiate one. In fact, this is generally what is meant by "deterrence."

A functional approach takes all this pretty much for granted: Rationally, nuclear war is not at present, or for the foreseeable future, "worth it." At this point, the nuclear functionalist begins to worry, especially about factors that might influence calculations of the perceived "worth" of initiating nuclear war. *Malfunctions*, or potential malfunctions, represent that aspect of the "insanity" of nuclear war into which functionalists must propel their imaginations. These possibilities, moreover, depend for their possibility largely, perhaps even mainly, on variables we all tend to think of as psychological. For simplicity's sake, we may identify at least three canonical sources of possible malfunction in the process of trying to maintain mutual nuclear deterrence:

1. Human beings interact with mechanical systems.
2. Human beings also interact with each other.
3. Human beings also interact, as a vast and abstract "system" of foreign policy, with another such variegated "system" representing the nuclear adversary.

To the nuclear functionalist, particularly to one trained in the behavioral sciences, this Ptolemaic-like system of machinery, perceptions, decisions, beliefs, and so on, is veritably filled to overflowing with possibilities for systemic and systematic, and potentially tragic, error. It is important to notice that this is so even if, as appears presently to be the case, the nuclear forces of the superpowers are mutually redundant and the second strike capacity of each is regarded as unquestionably invulnerable.

A glance at Table I (Nye, 1984) will reveal why a functionalist approach lends itself so interestingly to fertilization from the behavioral sciences. Risk of surprise attack, a "bolt from the blue," is generally regarded as least probable. Why? Because forces are structured to prevent it and, short of total madness overtaking one or another leadership of either superpower, the structures themselves prevent the calculations required to believe an all-out first-strike "out of the blue" is worth the risk. Prevention of this sort of path being taken is what most of our nuclear forces are in fact designed for, and they thus far have done their job well.

But notice the central characteristic of the two paths to nuclear war usually regarded as most dangerous: (1) escalation of conventional war and

Table I. Nuclear-Risk Reduction

Paths to Nuclear War (ranked by probability)	Factors Affecting Likelihood of Path	Actions to Reduce Likelihood of Path
1. Escalation of conventional war	U.S.-Soviet conventional war Balance of general purpose forces Vulnerability of theater nuclear forces Misperception/miscalculation	Crisis prevention and management Maintain balance of general purpose forces Reduce vulnerability of theater nuclear forces Improve command/control
2. Preemption in crisis	War appears imminent and unavoidable Balance of nuclear forces Misperception/miscalculation	Crisis prevention and management Maintain balance of nuclear forces Reduce vulnerability of nuclear forces
3. Accidental or unauthorized use	Procedures and devices designed to prevent accidents and unauthorized use (that is, Permissive Action Links) Communication systems	Improve procedures and devices Improve communication systems Crisis prevention and management
4. Initiation by a third party	Third party access to nuclear weapons and delivery systems U.S. and Soviet presence in conflict areas	Inhibit nuclear proliferation Crisis prevention and management
5. Surprise attack	Extreme U.S.-Soviet hostility Balance of nuclear forces Vulnerability of nuclear forces Misperception/miscalculation Irrationality	Strengthen incentives for peace Maintain balance of nuclear forces Reduce vulnerability of nuclear forces

(2) preemption in crisis. Each occurs in the midst of a deep superpower crisis—that is, leaders of the superpowers, observing the unfolding of a shooting war or a deep political conflict, begin to perceive that the threat is great enough, the risk is high enough, and time may be short enough, that a nuclear war *could* result (Lebow, 1981). Although more will be said later about the concept of crisis, we may simply notice here that, viewed psychologically, it is what psychologists would probably refer to as a mental *state*, within which the occurrence of a specific *event*, the failure of deterrence, is to be prevented. The fundamental point of the nuclear functionalist is just that, while in a state of crisis, the act which everyone concerned formerly regarded as insane, may no longer appear insane at all. In a sense, the functionalist program for avoiding nuclear war, under present and foreseeable force levels and structures, boils down to this: Avoid crises between the superpowers and where this proves to be impossible, learn to manage them successfully.

This becomes all the more obvious in Table II, in which are represented summaries of strategies for avoiding nuclear war (Nye, 1984; p. 407; see also Allison *et al.*, 1985, pp. 12-13). Notice in the left-hand column that, no matter where we choose to enter some imagined path to nuclear war—whether at the level of (1) precipitating, (2) intermediate or (3) deep causes—our goal is to avoid nuclear war via avoiding crises (or, in the case of an actual, precipitating crisis, via managing it successfully).

In addition to emphasizing *paths* through malfunctioning in crises by which one might arrive at nuclear war, and also its accommodation of three basic *levels* at which one might try to understand and attack the problem, a nuclear functionalist must also accord great importance to a third factor, one which is an almost purely psychological construct. It is the idea that, in constructing and executing foreign policy, including nuclear policy, one is liable to make certain sorts of *errors*, mainly errors in perception, which lead to erroneous beliefs, which in turn may lead to mistaken policies and actions. This basic insight is derived from a point popularized recently by Robert Jervis (1976, 1983), called the “security dilemma”: that in a world of quasi-anarchic relations such as those which characterize the interactions of nation-states, increasing one’s own security may tend to decrease that of others, and vice versa.

This implies that not only may we speak legitimately of failures of *deterrence*, but also of failures of what I prefer to call, adapting a suggestion of Jonathan Dean (1983) and Michael McCwire (1984), failures of *reassurance*. One may, that is, fail to reassure an adversary that various forces and weapons are intended for defense, thus the intention is misread, and the adversary responds in kind in order to protect his own security. As Jervis has observed and as a nuclear functionalist must take fully into account, a kind of “spiral-ing” may occur which produces crises like that which seems to have

Table II. Approach to U.S.-Soviet Nuclear-Risk Reductions

	Basic Goals	General Strategies	Some CBMs and Stabilization Measures
1. Crisis management (of possible precipitating causes of nuclear war)	Crisis stability Credibility Limits Termination	SOPs that buy time Clear signals Constant communication Civilian control of force movements	Declaratory policy Crisis exercises Hot Line Crisis center
2. Crisis prevention (of possible contributory causes of nuclear crises)	Avoid misperception and miscalculation of interests Avoid loss of control to small states Avoid loss of control due to military mistake	Termination plans Preventive diplomacy Classic diplomacy Early consultations General and specific limits	Mediation Military zones, buffers, etc. Regular meetings Arms transfer talks Nonproliferation
3. Long-run stabilization (of basic conflict that creates risks of nuclear crises and war)	Increase transparency and predictability Demonstrate common interest	Increase contacts Increase reciprocity	Arms control Monitoring/inspection Informal talks Exchanges

precipitated World War I, in addition to more classic failures of deterrence, like that which invited Hitler's *blitzkrieg* into Eastern and Western Europe.

We may call the former sort of error of provocation or intimidation a *hawk's error*, while we should refer to the sort of invitation to aggression brought on by inadequate deterrence as a *dove's error* (Allison *et al.*, 1985, pp. 212-214). The overall foreign policy goal thus becomes "balanced deterrence"—the attempt to avoid excessive provocation and excessive invitation. We may fill out our foreign policy aviary with an "owl's error—a "frozen safety catch," which is something like excessive organizational and mechanical safeguards against responding with force when it really is appropriate to do so. From a psychological standpoint, however, a dove's error and an owl's error would produce the same result: if an adversary believed *either* that a leadership lacked the will *or* the ability to respond quickly and effectively to aggression, then this error (dove's or owl's) would constitute an invitation to aggression, leading perhaps to a failure of deterrence, and war.

Two important characteristics of a Hawk's Error and a Dove's Error should be noticed. First, each represents an instance of inadvertent psychological misreading, or misperception. One believes that it takes either too much or too little to deter an adversary and this sort of mistake must be due in large part to the inability to view one's own security arrangements as an adversary might view them. Second, these sorts of psychologically based errors can manifest themselves at any of the three levels of causation along which one might imagine following a path clear through to nuclear war. Each of these characteristics is illustrated in Table III. In the sections which follow, this framework is applied to recent work on deep and intermediate causes of a potential nuclear war and to prospective work on precipitating causes.

Table III. Psychological Dimensions of the Causation of a Potential Nuclear War

Level of Causation	Policy Goals	Psychological Dimension	Hawk's Error	Dove's Error
Precipitating	Crisis management	Preventing the belief in oneself and in the adversary that nuclear war is inevitable and that it is advantageous to go first	Inadvertent escalation that produces a perverse situation	"Preemptive surrender" to blackmail
Intermediate	Crisis prevention	Promoting higher quality, more balanced decision-making in leaders	Decisions which <i>provoke</i> an attack or escalation	Decisions which <i>invite</i> escalation
Deep	Long-range stability of the super-power relationship	Promoting enhanced cooperation and trust between the leaderships of the superpowers	Unbridled arms racing	Isolationism; unilateral disarmament

DEEP PSYCHOLOGICAL CAUSES: NUCLEAR DEPTH PSYCHOLOGY

In the title of a recent article, Robert R. Holt (1984), the distinguished psychologist and psychoanalytic theorist, has put into a single short question the entire program of the depth psychologists and psychiatrists of our nuclear dilemma: He asks: "Can Psychology Meet Einstein's Challenge?" The paper begins with a reminder of the challenge, as laid down by Einstein shortly after World War II: "The unleashed power of the atom has changed everything save our modes of thinking, and thus we drift toward unparalleled catastrophe. . . . a new type of thinking is essential if mankind is to survive" (cited in Holt, 1984, pp. 199-200). Even a casual perusal of the books in the "Nuclear" sections that have sprung up lately in many bookstores will reveal the astounding influence of Einstein, a physicist, on the present generation of psychologists and psychiatrists who have become professionally concerned with nuclear policy.

These, then, are the two fundamental constituents of what I will call *nuclear depth psychology*; both are derivable (and in many cases are actually derived) from the political writings of Einstein. First, the risk of nuclear war is held to be rising constantly and rapidly due to the existence of an *arms race* between the superpowers. This race is run by both superpowers ostensibly to bolster deterrence and thus to avoid a nuclear war. But nuclear depth psychologists believe that the arms race will eventually have precisely the opposite result: They hold that the leadership of one country (or both) will because of fear, miscalculation, or technological error, initiate the nuclear war presently feared by all.

But nuclear depth psychology is distinguished principally by the emphasis its advocates place upon *deep* psychological processes, the pathology of which is believed to explain an arms race they regard as patently irrational—in the sense that the end toward which they believe it is taking us, nuclear war, is the very inverse of the goal sought by advocates of a vigorous nuclear weapons competition between the superpowers. In short, nuclear depth psychologists believe that what they take to be our present and escalating nuclear danger can be traced to problems in our collective *thinking* about nuclear war and nuclear deterrence and that these problems are deep and usually outside the awareness of those who make and execute nuclear policy. They thus conceptualize risk of nuclear war as mainly a psychological problem: If we could alter the way we think in fundamental ways, chiefly by shifting to a less parochial, more global perspective, the deep psychopathology would be cured, the arms race would be terminated, and the risk of nuclear war could be greatly reduced, perhaps ultimately even to zero.

Two schools of thought dominate nuclear depth psychology. I will characterize them within the terminology suggested by Holt (1984, pp. 211-212). On the one hand, there are the *cognitivists*, those who believe that the deep psychopathology driving the arms race is a pathology of personal cognition, albeit one involving the cognitions of a great many leaders in the United States and the Soviet Union. To put the point somewhat colloquially, but pointedly: Cognitivists believe the arms race is crazy because crazy people are running it. As we shall see presently, this approach to the problem of nuclear risk has led many people straightaway to the view that the cure for superpower psychopathology is not fundamentally different in kind from the psychotherapeutic process required to cure any sort of psychological illness involving thought disorder. For most cognitivists, not only may the problem of nuclear risk be conceptualized psychologically, but so also may the cure, which is some process akin to psychotherapy.

The other principal school of nuclear depth psychology is that of the *interactionists*. Advocates of this view tend to believe that there is no evidence suggesting the presence of widespread pathology in the cognitions of the individual leaders of either superpower. Rather, they argue that the deep psychopathology is more abstract, embodied in what they take to be a pathological relationship between the two countries. Within what nuclear depth psychologists take to be crazy patterns of interaction between the superpowers, especially institutionalized mistrust and assumptions of ubiquitous hostile intent, the leaders are seen as functioning quite rationally, as a rule, and one of the forms taken by their rational adaptation to a crazy system is participation in the nuclear arms race. Thus, according to the interactionists, if risk of nuclear war is to be reduced significantly, the quality of the superpower relationship must be changed fundamentally, and this implies a mainly *political*, rather than psychotherapeutic, cure for superpower psychopathology.

The most famous cognitivist among nuclear depth psychologists is Helen Caldicott. Categorical and self-righteous in her assertions, shrill in her writing and speaking, Caldicott might easily be ignored by serious students of nuclear psychology if it weren't for her astonishing popularity. She is a best-selling author, a speaker who is much in demand, a founding member of the reestablished Physicians for Social Responsibility (PSR) and, more recently, a driving force behind Women's Action for Nuclear Disarmament (WAND). Thus one must assume that a great many people have, in Caldicott, found a voice commensurate in content and tone with their own deep fears and beliefs about risk of nuclear war (but see Coles, 1984).

Caldicott's writing is filled with *ad hominem* psychological assaults like the following:

The definition of a paranoid patient is someone who imagines a certain scenario in his or her own mind, decides (with no objective evidence) that this is exactly what

someone else is thinking, and then decides to act on that notion. The paranoid delusions projected onto the Russian leaders come straight from the minds of American strategists and leaders, and these ideas probably reflect exactly what the Americans are planning to do themselves and bear little relationship to Soviet strategy or reality. (1984, pp. 174-175).

Leading candidates for this diagnosis of paranoia are, according to Caldicott, "so-called broad-minded intellectuals who sat on Reagan's MX Commission" (The Scowcroft Commission). Moreover, she asserts, "such fantasy thinking is still practiced at the highest levels of government, including President Reagan and Defense Secretary Weinberger, and is overt paranoia" (1984, p. 174). One may find similar diagnoses in Kovel ("paranoid madness"; 1983, p. 84) and Menninger ("exhibitionistic drunken gesturing of two suicidal giants"; 1983, p. 350).

Unfortunately for Caldicott and her cognitivist colleagues, however, her diagnoses are simply, demonstrably wrong. The Soviets have a vast nuclear arsenal; their missiles and bombers really are aimed at us; they really do have rather precise plans for using them to destroy us in a nuclear war (see, e.g., Holloway, 1985; Meyer, 1985). However this state of affairs may have come about, our leaders do not simply imagine the Soviet nuclear threat. It is real, as anyone who examines the evidence may see.

In moving from her analysis of the problem of nuclear risk—crazy leaders—to her therapeutic prescriptions for a cure, Caldicott's irrelevance to the world of nuclear policy-making becomes total. Because she believes that deeply sick people are driving the risk of nuclear war upward, she must choose between two broad prescriptive alternatives: something akin to political revolution, by which *our* leaders, at any rate, would be forcibly replaced; or therapy, by which they would be healed. Kovel (1983) leans toward the former alternative; Caldicott, however, favors some novel forms of therapy, such as a kind of marriage counseling, in which each superpower would be required to "pledge" its "troth" to the other (1984, p. 292), monthly wrestling matches between "the men who control the superpowers...to alleviate the built-up aggressions" (p. 305), and parental advice to "grow up and become responsible nations" (p. 337). One may at first wonder whether Caldicott puts forward such suggestions as these seriously but, noting the unrelentingly humorless tone of her writing, one suspects that she does. But because her cognitivist diagnoses are patently false, and because the realization of her prescription is so wildly improbable, the likelihood that the course she advocates will actually lead to a reduction in the risk of nuclear war ought to be rated at very nearly zero.

The interactionists among nuclear depth psychologists hold a much more sophisticated view of the relevance of psychology to alterations they believe may substantially reduce the risk of nuclear war. To interactionists, psychological insights are relevant to nuclear risk reduction mainly in indirect, suggestive ways which depend on the validity of an analogy: between "systems"

of interaction between people which may be characterized as "certifiably pathological" (Holt, 1984, p. 211), and the defective relationship between the superpowers, which is exhibited in an arms race which, in turn, is believed to drive risk of nuclear war continuously upward. In other words, whereas cognitivists like Caldicott diagnose the arms race psychologically in order to prescribe *psychologically*, interactionists diagnose psychologically in order to prescribe *politically*. Interactionists thus seek *policies*, not therapies, with which to heal what they view as a deeply pathological superpower relationship.

The roster of interactionists contains many of the most eminent American psychiatrists and psychologists, including Morton Deutsch (1983), Erik Erikson (1984), Robert Holt (1984), Robert Jay Lifton (Lifton and Falk, 1982), John Mack (1985a,b), Carl Rogers (1982), and Ralph K. White (1984). Here are characteristic statements from psychiatrist John Mack and psychologist Morton Deutsch on what they regard as the deep psychological problem underlying risk of nuclear war:

...the nuclear weapons competition actually is insane, or, to use the more modern term, psychotic, in some deep, formal or literal sense...In the case of the nuclear arms race, it is not individuals who are psychotic. Rather, the madness resides in collective patterns of thinking and relationships that are poorly adapted to the requirements of planetary survival in the nuclear age [Mack, 1985b, p. 53; see also, 1985a]. ...the United States and the Soviet Union are trapped in a malignant social process giving rise to a web of interactions and defensive maneuvers, which, instead of improving their situations, make them both feel less secure, more vulnerable, and burdened and a threat to one another and to the world at large. (Deutsch, 1983, p. 21)

Interactionists believe they have encountered similarly crazy processes before, in work with families and larger communities, and that is why they feel competent to speak out on what they regard as the psychopathology underlying the arms race.

The sort of prescriptions offered by interactionists seem, at first glance, much less reductionistic than those of the cognitivists. Interactionists implicitly try to act on a principle laid down by Stanley Hoffmann in his recent presidential address to the International Society of Political Psychology. According to Hoffmann, "even if one accepts the metaphors of collective disease or pathology, one must understand that the 'cure' can only be provided by politics" (Hoffmann, 1986). Thus Mack looks forward to "a process of political maturation" (1985b, p. 53), while Deutsch favors measures by which "mutual security" will replace our present, nearly total dependence upon "national security" (1983, p. 24). Each seeks to articulate political means to transform interactive superpower pathology, end the arms race and eliminate the risk of catastrophic nuclear war. In this way, via the political transformation of the superpower relationship, the interactionists among nuclear depth psychologists seek to alter our manner of thinking in line with Einstein's requirements.

While one must acknowledge the *prima facie* plausibility of the interactionist viewpoint, it is still impossible to be optimistic about the probability

that interactionists' goals can actually be accomplished. For as Hoffmann (1986) has pointed out, all nuclear depth psychologists are *radicals*. All believe that risk of nuclear war is primarily a function of a superpower arms race driven by deep, recalcitrant psychopathology. The functional significance of this fact is that any important reduction in the risk of nuclear war is contingent upon accomplishing a fundamental alteration in the way the governments of the United States and the Soviet Union relate to each other, and while such an imagined transformation need not necessarily happen immediately, or even quickly, any rational evaluation of the prospects for nuclear depth psychology depends decisively upon one's estimate of the probability of discovering a plausible process of goal-directed, radical psychological change on an international scale. For interactionists, this requires a *political* process which can plausibly be predicted to yield a psychological change commensurate with interactionist requirements.

Viewed schematically, there are two possible sources of political movement toward radical psychological transformation sought by the interactionists. Movement might occur from the *bottom-up*, in which radical populist episodes in recent Western history would be emulated in the new nuclear context. The views of ordinary people, sensing the need for a new way of thinking about nuclear war and superpower relations, would, in this imagined instance, gradually but completely infiltrate Western political and military establishments. When this occurs, Western political leaders would ask their Soviet counterparts to join them in halting the arms race. The Soviets, relieved, would reciprocate.

Alternatively, one can imagine interactionist goals being accomplished from the *top-down*. In this scenario, a leader of a superpower seizes a moment ripe for drastic change in superpower relations and takes measures which are unprecedentedly bold, perhaps including unilateral cuts in the nuclear arsenal, or a freeze on the deployment of weapons deemed by the adversary to be particularly useful for a first-strike. The leader's counterpart then reciprocates. Of course, one can imagine the bottom-up and top-down approaches combining in many ways and in different proportions. Yet these must be the broad constituents of any process of change equal to the requirements of the interactionists.

The key issue, however, is whether we should reasonably expect such processes actually to lead to the desired results: the end of the arms race and massive reduction in the risk of nuclear war. The answer is that we should *not*, and in arriving at this answer we may notice that the first-blush plausibility of the interactionists' program begins to collapse.

First, on the prospects for movement from the bottom-up: There is absolutely no evidence that grass-roots movements in the nuclear age have had the slightest impact on the direction and intensity of the nuclear arms competition (Betts, 1984). Quite the contrary, in fact. In recent years, for exam-

ple, the Freeze Movement, begun with high hopes and much fanfare in the early 1980s, appears already to be passing into a rapid demise without anything resembling even a partial freeze anywhere in sight (Klare, 1985). It is simply a fact that, as Yorick Blumenfeld, a writer very sympathetic to radical nuclear politics, wrote recently, "The peace movement has had no visible impact on the scale or speed of the arms race" (1985, p. 44). This has been true of all such movements in the nuclear age and, unless interactionists can find a way plausibly to argue that the future of bottom-up transformation will be the inverse of the past, there is no reason for optimism.

The same holds true for the top-down approach. There is simply no precedent for what the interactionists must try to envision and no reason to suppose a new precedent will be set. Morton Deutsch, for example, argues that the superpower psychopathology could eventually be eliminated if only "a bold and courageous American leadership would take a risk for peace...[and] announce its determination to end the crazy arms race" (1983, p. 23). But consider the limiting case so far of top-down initiatives: President Kennedy's announcement on June 10, 1963, that the United States would thereafter forego atmospheric testing of nuclear weapons so long as the other nuclear powers (the Soviet Union and Great Britain) did likewise. Psychologist Carl Rogers has argued that this bold move, combined with the Limited Test Ban Treaty which followed, is the prototype of the sort of process needed to begin to cure the pathological superpower relationship (Rogers, 1982, pp. 12-13).

Yet nothing remotely resembling any such radical transformation actually occurred. In fact, the event which probably contributed most to creating a need for a "thaw" in the cold war—the terrifying Cuban missile crisis of October, 1962—was also, paradoxically, a significant point of origin for the nuclear arms competition now so greatly feared by nuclear depth psychologists. For while one Soviet reaction to that near miss was a certain amount of increased receptivity to President Kennedy's proposal for an atmospheric test ban, yet another was probably the initiation (or at least the acceleration) of a massive Soviet nuclear arms buildup that, a generation later, continues unabated (Trachtenberg, 1985). Thus, viewed in their full context, the events of 1963 were, in relation to the goals of the interactionists, utterly equivocal and cannot plausibly be regarded collectively as a potential point of departure for ending the arms race. They may in fact have contributed more to the cause of it than to some imagined cure.

Limitations of space do not permit an analysis of why the superpower relationship has proven so resistant to change and why it probably will continue to frustrate anyone seeking to transform it in fundamental ways. But some things are obvious: The two societies in question have drastically conflicting values; their political systems and the constraints governing their respective decision-making processes are so different as to be rendered almost

mutually incomprehensible; there is even evidence which suggests that two huge and powerful hegemonic powers like the United States and the Soviet Union are bound to be very competitive (McNeill, 1982). These must all be included in any plausible explanation of the longstanding and continuous enmity between the superpowers. The point for the nuclear depth psychologists is that, *contra* Einstein, none of this has changed or is likely to change—in short, everything has *not* changed except our thinking. In fact, the two most significant determinants of our thinking—our social structure (in the present case, the anarchical nation-state system) and our biological drives—have hardly changed at all. Einstein's basic premise is simply wrong and that is why the program of nuclear depth psychology, which is wholly consistent with this premise, is implausible.

The question arises, finally, as to whether an approach to reducing the deep psychological causes of the risk of nuclear war is conceivable whose prospects are brighter than those of nuclear depth psychology. In my view, the most responsibly optimistic answer is that it remains an open question. Yet those political psychologists seeking to operate at the level of deep causes of nuclear risk will need to face squarely an immense problem that has not been adequately dealt with, or scarcely even acknowledged, by nuclear depth psychologists. It is this: The *deeper* into the causal chain of international relations one wishes to look for means of reducing the risk of nuclear war, the *further* into the future one must look in anticipation of positive results. And the further into the future we look, the fuzzier our vision becomes, because the present state of our knowledge becomes less relevant to future worlds, because those worlds become progressively harder to imagine correctly. Not that one should necessarily avoid trying to look both deeply and far, for few people believe nuclear deterrence will last forever and thus we must search for plausible, less risky alternatives to the present reality (see Allison *et al.*, pp. 244-246). But the double moral for psychologists seeking to contribute to reducing the risk of nuclear war would seem to be this: The level of deep causes is probably not the place to begin; and nuclear depth psychology is inadequate for the task, in any case.

INTERMEDIATE PSYCHOLOGICAL CAUSES: CONSTRAINTS ON THE RATIONALITY OF FOREIGN POLICY DECISION-MAKING

Those who have chosen to attack the problem of nuclear risk at the intermediate psychological level begin with assumptions, methodologies and goals which are quite different from those of the depth psychologists. First, the international system of sovereignty and competition deplored by Eins-

tein and his followers is simply posited as a given. Nation-states exist; super-power competition exists; nuclear weapons exist; therefore, nuclear risk exists and will probably continue to exist for as far into the future as anyone cares to look. The goal, therefore, is not a psychological revolution but psychological knowledge which might assist policy-makers in the *management* of the risk of nuclear war. Moreover, the methodologies of those attacking intermediate causes tend not toward the psychotherapeutic analogies of the nuclear depth psychologists, but toward basic research related in various ways to decision-making.

The basic problem addressed at the intermediate level is that foreign policy makers, like human beings generally, are not as rational as we would like them to be. The virtually paradigmatic approach is thus to determine in specific situations the nature and extent to which decision-makers depart, or are likely to depart, from perfectly rational, omniscient problem-solving and to suggest ways in which the enormous gap between the ideal and reality might be closed slightly.

No one working on problems of constrained rationality in policy and decision-making expects to have an effect that is more than marginal. To illustrate why this is so, consider the fantasy of constructing what I'll call a "foreign policy robot" which has been designed specifically to oversee nuclear policy, for that is where perfect rationality would be most appreciated by the most constituents. Because this robot is thus a Benthamite decision-maker for the nuclear age, I will call him "Jeremy." Jeremy's software has been designed in consultation with several experts, of course. His deep structures follow Hans Morgenthau's (1973) first principle of foreign policy analysis: "to give meaning to the factual raw material of foreign policy, we must approach political reality with a kind of rational outline ... presuming always that ... [the statesman—Jeremy!] acts in a rational (i.e., power-maximizing) manner" (p. 119).

But of course, our rational robot cannot live and conduct policy by means of a mere outline. Thus, we borrow from decision-theorist and psychologist Baruch Fischhoff (1983) a loosely structured algorithm for making rational decisions:

1. *Define the Problem.* List the complete set of decision options ... and the complete set of relevant consequences that may follow from them...
2. *Evaluate Consequences.* Determine the attractiveness or aversiveness of each possible consequence.
3. *Assess the Likelihood of the Consequences.* Ascertain the probability of the various possible consequences being realized, by a review of available evidence.
4. *Decide.* Choose a most attractive option, by combining all that one knows and feels about a problem. (p. 136)

Thus, on all decisions relevant to nuclear weapons, Jeremy will be programmed to make *the* rational, best possible choice. Design, procurement, construc-

tion, deployment, strategy, negotiations both domestic and foreign—on all these subjects, the best rational choice will be made.

But best, according to which goal? Obviously we need a rational objective toward which to move our rational policy. We decide—perhaps rationally, perhaps not—that Alexander L. George (1980) has provided the answer: a rational decision regarding foreign policy, including nuclear policy, is one in which one “chooses a policy or option that is most likely to achieve national interest at acceptable cost and risk” (p. 3). We now have constructed in our imaginations a robot whose rational outline has been disaggregated into a rational decision-making algorithm, and he has been given a rational goal—to be sure that each decision maximizes our national interest, with all possible costs and risks taken into account. With our foreign policy robot in charge, with resulting decisions and policies of impeccable rationality, we would have greatly increased our confidence that a nuclear war would not occur because of misperception, cognitive rigidity or other examples of human fallibility in decision-making.

It is important to realize, however, that nuclear war is still possible within a fully rational, robotized foreign policy regime of a nuclear superpower. Why? Because we have made Jeremy relatively *omniscient* with regard to present structural realities and calculational power, but he is not *omnipotent*. That is, he would be forced to conduct foreign policy and manage the superpower relationship under present conditions: the United States and Soviet Union are both sovereign, competitive, sometimes hostile superpowers, and the threat to use nuclear weapons is an ever-present, if usually covert, instrument of foreign policy. Risk of nuclear war can never be zero in such a world. For example, Jeremy's implied threats to use nuclear weapons, made with the rational intention of bolstering deterrence and of achieving some foreign policy objectives, may be perceived by the adversary as an intention to go to nuclear war, thus creating a felt need to go first—either by controlled escalation or by massive preemption.

To the students of the psychological aspects of foreign policy who focus on intermediate causes, Einstein's post-revolutionary utopia and Jeremy the robot's perfect rationality share an essential trait: neither bears the slightest resemblance to the real world in which foreign policy decisions must be made. *Murphy's Law, not Einstein's or Bentham's, prevails*. Rationality, to use the term popularized by Herbert Simon, is “bounded,” severely constrained by both internal and external factors. First, evolution has simply not constructed us in a way that is even remotely congruent with the requirements of the algorithm for rational decision-making we assigned to our robot. We just do not have the equipment that permits access to a “complete set of relevant consequences” or all *possible* options. Charles Lindblom (Braybrooke and Lindblom, 1963), a seminal figure in the application of the concept of bound-

ed rationality to political decision making, has captured marvelously the *qualitative* difference between problem solving by a fully rational algorithm and what I'll call “Murphy's algorithm”:

Dodging in and out of the unconscious, moving back and forth from concrete to abstract, trying chance here and system there, soaring, jumping, backtracking, crawling, sometimes freezing on point like a bird dog...[the decision-maker] exploits mental processes that are only slowly yielding to observation and systematic description. (p. 81)

Is this fully rational? It is not. But Lindblom's point, which forms the psychological foundation for what he calls our policy “science of muddling through” (Lindblom, 1959), is that while it may not be rational, it is *natural*. It really is what we have to work with. Any strategy of improving the rationality of our decision-making must in his view begin with a realistic appraisal of our deficiencies—which are many. “Policy-makers,” as psychologist Philip Tetlock (1983) has put it, “see the world ‘through a glass darkly’—through the simplified images they have created of the international scene” (p. 68).

But bounds on the rationality of our decision-making are not only internal, part of our evolutionary equipment (or its lack). We are also constrained by imperfections in our ability to cooperate optimally within organizations and institutions, such as governments, which are above all else instruments of *social* decision-making. As Herbert Simon (1983) has recently and pointedly emphasized “we are not monads” (p. 75). Foreign policy in particular is not conducted, for example, by having citizens (who've never met) fill out a multiple choice test which they submit via secret ballot, to be counted and acted upon by someone like our foreign policy robot. Quite the opposite: foreign policy decisions are made by relatively small groups of various sorts, each with different goals and therefore interests, whose activity requires processes of consensus-building, conformity, and so on, which further erode any hope for fully rational foreign policy.

What does all this sum up to, with regard to intermediate psychological causes of a potential nuclear war? Just this: that by having defined a nuclear war as supremely irrational, even insane, and having structured our nuclear forces so as to guarantee that any rational decision-maker will see the suicidal foolishness of nuclear war—having done all this, we still have no basis whatever for concluding that nuclear war is anything like “impossible.” In Einstein *et al.*'s post-revolutionary world federation? In a world of nation-states ruled by robot-like, perfectly rational actors? No, probably not even in these fantasy-worlds would nuclear war be impossible. And in our actual world, according to all we know about the internal and external constraints on our rationality, we have no justification whatever for believing that nuclear war is impossible.

It is of course impossible to survey all the experimental, clinical and historical research relevant to the boundedness of our rationality. In fact, one cannot do this even with reference to a moderate-sized library, for one definition of scientific psychological inquiry is this: a search for the dimensions, extent, and limits of the bounds of our rational problem-solving ability. But for the general flavor of psychological research which by common consent has been deemed relevant to foreign policy decision-making, consult Table IV, which is adapted from J. P. Kahan *et al.*'s. (1983) remarkably useful Rand Note called "Preventing Nuclear Conflict." In it, one can find many famous and influential examples of documented proof that foreign policy makers are neither saints nor robots, but often close-minded, misperceiving, "group-thinking", conforming people, and some suggestions for improving their rationality, at the margins.

In keeping with our functional orientation, how might the multifaceted boundedness of our rationality lead to nuclear war? The possibilities, unfortunately, are limitless. Kahan *et al.* have assembled several of them into a lengthy scenario, "A New Cuban Crisis," in which misperception and bad judgment abound (1983, pp. 18-21). It is plausible, though like all detailed scenarios for nuclear war, quite improbable. More concise and thought-provoking, in my view, is a trichotomy of generic "paths" to nuclear war they believe, correctly I think, are consistent with various sorts of psychological research:

1. Empirical studies in cognitive psychology suggest that decisionmakers may not always behave rationally, as deterrence theory presumes, and might actually escalate beyond a crisis to nuclear war for reasons that appear irrational or illogical.

2. Studies of behavior in experimental games suggest that, even if both sides are acting rationally, they may misperceive the situation and in essence make the right move, but for the wrong game.

3. Models of individual and small group dysfunction from psychiatry offer a possible fatal irony: Both sides may act rationally and both sides may correctly perceive the situation, but in the mistaken belief that the other side misperceives the situation, one side may take a protective action that results in a war that nobody wanted (1983, p. 18).

No wonder the authors conclude their survey by asserting that "the behavioral sciences provide a basis for distrusting the conclusion that a nuclear war between the superpowers is already adequately prevented" (1983, p. 18).

What, then, is to be done to reduce the risk of nuclear war, a risk made (presumably) unacceptably high by constraints on the capacity of leaders to make the kind of rational decisions required by the logic of deterrence? In a general way, the answer is obvious: Do what is possible to reduce the immense gap in the potential for rational decision-making between our foreign policy robot and our actual foreign policy makers. But specifically, what sort

of recommendations have been made by the most eminent students of the intermediate causes of a potential nuclear war? They are listed in Table IV: interventions suggested by political scientists, game-theorists, and psychologists.

But attention should be drawn not only to the content but also to the *form* of the various recommendations, a form which may ultimately render the extant intermediate psychology of avoiding nuclear war rather completely beside the policy-makers' point. In Table IV, no fewer than twelve suggestions are made which, if applied to decision-making bodies relevant to nuclear policy, would (one may presume) reduce the risk of nuclear war by reducing the effect of constraints on the rationality of decision-makers. The first ten begin, in turn, as follows:

1. Decision makers should...
2. Decision makers should...
3. ...decision makers should...
4. Decision makers should...
5. Assign a group...
6. ...organizations should...
7. ...biases should...
8. Multiple advocacy should...
9. The executive should...
10. Use cognitive mapping... (Kahan *et al.*, 1983, p. 33)

As the compilers of the list suggest, the hortatory flavor of these recommendations disguises an almost total lack of impact from the behavioral sciences upon foreign policy decision-making. Behavioral scientists are studying decrements in rationality; they are also drawing conclusions and making lists of recommendations. But, so it appears, no one at the policy end is listening. In fact, the conclusions of the recent Rand survey of behavioral research on preventing nuclear war and also those of a recent Carnegie Corporation conference (1984) devoted to the same topic are identical: Behavioral scientists, whatever they may know, have made no headway at all in altering the process of foreign policy making.

Why is this? Why, if "decision makers should," do they not? There are many sorts of reasons, from the superficial to the deep and perhaps insurmountable. The report summarizing the results of the Carnegie Conference notes several traditional problems faced by behavioral science: it is thought to be mushy and unreliable, opinionated and ideological, jargon-ridden and incomprehensible, and too complex to be fully absorbed by busy policy-makers (Carnegie Corporation, 1984, pp. 17-20). These are important problems but they are essentially practical ones. As the report indicates, practical problems of this sort, rooted largely in simple (but powerful) perceived mutual strangeness, can perhaps be overcome by continuing efforts by psychologists to communicate in various ways with members of the policy-

Table IV. Prescriptions Intended to Make Foreign Policy Decision-Making More Rational

Study	Prescriptive Measures	
	Individual Level of Analysis	
Jervis (1968, 1976)	<p>Decisionmakers should realize that what may seem unambiguous may be so only because of their beliefs; a consequence of this realization is that decisionmakers will more closely examine evidence contrary to their beliefs.</p> <p>Decisionmakers should be suspicious if they hold a position in which elements that are not logically connected support the same conclusion; in such cases, views may be held for psychological comfort and may not be based on evidence.</p> <p>Before an event, decisionmakers should make assumptions, beliefs, and the predictions that follow as explicit as possible; then they will know what to expect, and surprise will indicate that beliefs should be reevaluated.</p> <p>Decisionmakers should be taught how to perform cognitive mapping on their beliefs; once a simple map is constructed, more sophisticated and complex maps can be constructed to improve the decisionmaking process.</p>	
Axelrod (1976)		
	Group Level of Analysis	
de Rivera (1968)	<p>Assign a group within the administration the task of constructing opposition cases. This group should continue to play the "devil's advocate" role after the decision is made.</p>	
Jervis (1968)	<p>Individuals and organizations should be prevented from letting their tasks and identity be tied to specific theories and images; e.g., organizations that claim to be unbiased may not realize the extent to which the definition of their role is linked with how they perceive events and the world.</p> <p>Conflicting biases should be constructed within the decisionmaking process.</p>	
George (1972)	<p>Multiple Advocacy should be instituted at the executive level, whereby within a decision-making group various people advocate a range of policy options.</p> <p>The executive should also define his role as evaluating and choosing options. Another person should be appointed to manage the system.</p>	
Axelrod (1976)	<p>Use cognitive mapping techniques to help groups find a common way to express a complex situation; this may help the group see the whole structure of the argument.</p> <p>Use techniques to permit experts to distinguish their beliefs about causation from their beliefs about goals. This allows experts to provide subjective opinions to groups and individuals.</p>	

making community. If these were the only problems, simple hard work and patience would eventually bring a payoff in reduced risk of nuclear war.

But there are much deeper, far less tractable difficulties in the path of behavioral scientists seeking to intervene at the intermediate level of the causation of a potential nuclear war. Chief among these is that which Kahan *et al.* call in their Rand Note (1983) the "self-reflexive nature of previous recommendations drawn from the behavioral sciences" (p. 40). The basic problem is this: "the decisionmaker who must improve decisionmaking is the very person whose decisionmaking is to be improved" (Kahan *et al.*, 1983, p. 40).

This is far from mere clever doubletalk. It unpacks the problem behind the hortatory form ("decisionmakers should") of behavioral recommendations. As Kahan *et al.* point out, the policy maker's response may legitimately be something like: "Who says I should?" or "Why should I?" or "What is wrong with current practice?" All decision makers are doubtless convinced most of the time, as are behavioral scientists, that they are acting as rationally as circumstances will allow. The fundamental problem, therefore, is that in the view of policy makers, behavioral recommendations just do not appear to arise from a context which is relevant to foreign policy. And they do not. Reversing the direction of the exhortation makes this clearer: "Behavioral scientists should..." etc. To each side receiving such directives, the advice must seem presumptuous and irrelevant.

The great divide separating the behavioral science of decision-making from nuclear policy-making cannot plausibly be attributed to some inherent faultiness in the psychological research itself. Indeed, the literature on sources of error and bias in decision-making is a large and impressive one (see, e.g., Nisbet and Ross, 1980; Slovic *et al.*, 1977; Tversky and Kahneman, 1974, 1981). Moreover, evidence of over-confidence, nonrecognition of trade-offs, and belief perseverance is far from limited to laboratory studies of college students and has, in fact, been shown to apply to groups as diverse as classroom teachers (Rosenthal and Jacobson, 1968), basketball players (Tversky *et al.*, 1985) and research psychologists (Rosenthal and Rosnow, 1969).

These studies demonstrate with quantitative precision that human problem-solving and decision-making is fraught with biases, false presumptions, and inadequate procedures that render many of our conclusions very far from the objective facts we take them to be. Of course, the goal of this research is not simply to point out how biased or devious we all are, but rather to discover the invariants in the processes by which we reliably reach mistaken conclusions. Once some of these factors are known, it is presumed that their influence can be reduced and the objectivity and overall quality of our decision-making concomitantly improved.

The best-known attempt to apply the methods and findings of the behavioral science decision-making to foreign policy-making is that of Irv-

ing Janis (1982). He has written extensively about the ways he believes "groupthink"—the tendency of decision-makers in groups toward biased and uncritical opinion formation—can be (and has been) an important component of presidential decision-making. There is little doubt that such a phenomenon exists, as Janis has shown in his studies of the Bay of Pigs fiasco and of the numerous decisions which resulted in the massive American escalation of the Vietnam War (1982, pp. 14-47, 97-130). The difficulty, acknowledged by Janis, resides in the failure of Janis and his colleagues to have any impact on political decision-making. He writes from the long and frustrating experience of a psychologist who has tried repeatedly and unsuccessfully to help decision-makers avoid groupthink. Here is his summary of the reactions he has gotten:

If you suggest a critical analysis session, most of the criticisms will be directed at you for disrupting the group spirit. If you try the devil's advocate role, the other members will act as if you were disloyal. If you tell the others of your diagnosis and point out the symptoms of groupthink, they are likely to resent your psychologizing because they feel you are accusing them of being incompetent. We cannot be very encouraging about the likelihood of success. (Wheeler and Janis, 1980, p. 208)

Thus we revisit, in a more personal and poignant way, the reflexivity problem: "the decisionmaker who must improve decisionmaking is the very person whose decisionmaking is to be improved" (Kahan *et al.*, 1983, p. 40). This is an important reason why foreign policy-making has remained almost completely impervious to the ministrations of behavioral scientists.

The nearly unanimous (if implied) decision of decision-makers to ignore the advice of behavioral scientists is rooted—or may be rooted—in a factor far more important than mere professional *hubris*. Psychologist Philip Tetlock makes the point concisely:

There is an enormous conceptual leap from the "relevant" research literature...to...American-Soviet relations. The research literatures focus on probabilistic relations among variables. The laws being sought are statistical ones that apply on the average. Policy-makers need to know what are the intentions, perceptions and capabilities of a specific government at a specific time. (Tetlock, 1983, p. 74)

This suggests that, whatever may be discovered or already known by behavioral scientists about decision-making, it is quite unlikely that this knowledge will ever significantly reduce the risk of nuclear war, simply because it cannot intrude into the policy making process. The fundamental reason for this is that policy making is not an applied science. Contrast this with clinical medicine, which rests *on*, and is to a greater extent than ever before an application *of*, biomedical research. This is not true of the relation between behavioral science and foreign policy making. The former is in many respects a science, though a fairly primitive one; the latter is an art. Each grew up separately from the other and only one side—the psychological—seems interested in a rapprochement.

What is the likelihood that behavioral psychology might, *in principle*, become something like a basic science underlying and intimately connected with the construction and execution of nuclear policy? The answer, I believe, is: Extremely low. The obstacle is not the mere (though presently substantial) problem of reflexivity. It is related to Tetlock's point about the uniqueness and individuality of the variables a foreign policy maker must confront, but it goes much deeper into the very nature of decision-making in situations where nuclear war may appear to be a live option. Everyone acknowledges that such decisions must be awesome to contemplate and momentous to execute. Yet behavioral psychologists have tended to conclude from these facts that the central danger in such situations is that stress will occur and that decision-making will thus become faulty, resulting in decisions to enact policies which are riskier than they need to be (see e.g., George, 1980, pp. 47-49; Janis, 1982, pp. 250-259; Lebow, 1987).

But this approach fails to address a basic characteristic of such decisions, which is that they constitute attempts to confront and transcend profound *moral* dilemmas. In fact, they are exemplars of a condition the philosopher Thomas Nagel calls a "moral blind alley...a choice between morally abominable courses of action...[with] no way to escape" (1979, p. 74; see also Hoffmann, 1981, p. 81). For the essence of a *nuclear* crisis, from the standpoint of an American president or Soviet chairman, would be the confrontation with a set of policy options, all of which are believed to require raising the risk of nuclear war, whether in the short run or the long run. No matter which way he turns, he faces increased risk of initiating a holocaust of unprecedented and (in his own mind) totally unjustifiable magnitude. In such situations, decision-makers are unlikely to believe they are at something resembling a choice point in a behavioral psychologist's "decision tree." Instead, the situation they are in is likely to look much more like a "moral blind alley," and it will look this way not because stress has distorted their cognition and perception, but because that is the way it really is.

But let us take a concrete instance to bring home this point and conclude this section. In the depths of the Cuban missile crisis, John F. Kennedy is reported to have said that he believed the probability of war between the superpowers—thus, probably nuclear war—was "between 1 out of 3 and even" (Sørensen, 1965, p. 705). It has recently been suggested that Kennedy's fractions represent merely "hyperbole" (Betts, 1985, p. 66) and that if Kennedy "really" believed that, he would have ordered a preemptive strike since, given the balance of forces in those days and the great relative benefit to the Americans in going first, the only "rational" thing to do would have been to strike, to go to nuclear war. According to this view, therefore, Kennedy did not really believe the odds he quoted. Or, if he did, his "irrationality" saved the world a nuclear war (Schelling, 1984).

rather than to concede?! Anyway, what does he think JFK was postulating? Does TCs think he should

But there is another possible interpretation, one I prefer and one which is consistent with the moral implications of Tetlock's important point. It is this: Kennedy believed the odds were between 1 in 3 and even but he chose not to go to nuclear war because his intuition, his ethical values, his reflexive responses told him it was wrong to do so. Schematically, what he believed he was doing was this: raising the risk of nuclear war in the short run (via the "quarantine" of Cuba) in order to prevent greater risks in the future (due to even more dangerous crises, say, in Berlin). This is reflected in a remark he made on October 22, 1962, in the televised speech in which the quarantine was announced. "The greatest danger of all," the president said, "would be to do nothing" (Kennedy, 1962, p. 809). After making his initial decision to quarantine Cuba, he took many steps to ensure that Khrushchev understood that he, Kennedy, wanted to avoid a war with the Soviet Union at least as powerfully as he wanted the Soviet missiles removed from Cuba.

Once the president and his advisers concluded that the missiles must be removed (probably a correct conclusion, given the hawkish predilections at that time of many powerful congressmen, military advisers, and most American citizens), Kennedy faced a classic, if inordinately momentous, moral dilemma. The tension was between his *utilitarian* calculations regarding what he believed would happen to his foreign policy, and to American security, if the missiles were allowed to remain, on the one hand, and on the other, his *absolutist* belief that it is fundamentally wrong consciously to take steps which raise the risk of nuclear holocaust (see Nagel, 1979, pp. 53-74). What would *happen* if he did nothing was, in his view, unacceptably bad, but what he believed he could not avoid *doing* was also reprehensible to him.

Nagel has written powerfully about this moral tension in regard to the duties of soldiers who find themselves in situations seeming to call for the killing of noncombatants. "It is," he writes, "perfectly possible to feel the force of both types of reason very strongly; in that case the moral dilemma will in certain situations of crisis be acute, and it may appear that every possible course of action of inaction is unacceptable for one reason or another" (Nagel, 1979, pp. 54-55).

There is no doubt that President Kennedy felt some such moral tension very keenly during the Cuban missile crisis. According to Robert Kennedy (1969), the moral dimensions of nuclear decision-making during those 13 days in October, 1962, become preeminent in the president's mind. "The thought that disturbed him most," he said, "...was the specter of the death of the children of this country and all the world—the young people who had no role, who had no say, who knew nothing even of the confrontation, but whose lives would be snuffed out like everyone else's" (p. 84). No matter which available decision the president made, he believed he raised the risk of set-